

Lesson 4.9: Life Science – Natural Selection & Mid-unit Review

Weekly Focus: Reading Comprehension
Weekly Skill: Using Test Taking Strategies

Lesson Summary: This week students continue with more reading on evolution with more of a focus on natural selection. The second half of the lesson will be a mid-unit review of Life Science units 4.1 – 4.8.

Note: These can be very controversial subjects. However, the material presented in the reading passage contains a lot of information that may be on the 2014 GED Science test. You may wish to spend time at the beginning of the lesson to review the goals of science, to find the best explanations of how the natural world works. This may help with working with a controversial subject.

Materials Needed:

- Comprehension Reading [Unit 4.9 Handout 1](#) (Spectrum Science, Grade 8, pages 56-57)
- Mid-Unit Review [Unit 4.9 Handout 2](#)
- Extra Work/Homework: [Unit 4.9 Handout 3](#)

Objectives: Students will be able to...

- Read comprehension passages with vocabulary related to evolution and natural selection
- Use test-taking strategies

College and Career Readiness Standards: RI, RST, WHST

ACES Skills Addressed: EC, LS, ALS, CT, SM, N

Notes: Please review and be familiar with classroom routine notes for: handling controversial topics ([Routine 5](#)), reading for fluency strategies ([Routine 2](#)), summarizing techniques ([Routine 4](#)), self-management skills ([Routine 1](#)). The notes for the different activities will help with making a smooth transition to each activity.

GED 2014 Science Test Overview – For Teachers and Students

The GED Science Test will be 90 minutes long and include approximately 34 questions with a total score value of 40. The questions will have focus on three content areas: life science (~40%), physical science (~40%), and Earth and space science (~20%). Students may be asked to read, analyze, understand, and extract information from a scientific reading, a news brief, a diagram, graph, table, or other material with scientific data and concepts or ideas.

The online test may consist of multiple choice, drop down menu, and fill-in-the-blank questions. There will also be two short answer questions (suggested 10 minutes each) where students may have to summarize, find evidence (supporting details), and reason or make a conclusion from the information (data) presented.

Lesson 4.9: Life Science – Natural Selection & Mid-unit Review

The work students are doing in class will help them with the GED Science Test. They are also learning skills that will help in many other areas of their lives.

Activities:

Warm-Up: Units 4.1 – 4.8 Review

Time: 15 - 20 minutes

Write on the board “We will have a review of Life Science Units 4.1 – 4.8 review. Take a moment to write down some of what you remember from the last few weeks.”

This is a great opportunity for students to review their handouts and notes from the last 8 weeks. If there are new students, take the time to copy previous material for them to incorporate into their binders or folders.

As a class, review what they remember from each of the units:

Unit 4.1: Cell structure

Unit 4.2: Cells & Cell Division

Unit 4.3: Reproduction & Meiosis

Unit 4.4: DNA and Mitosis

Unit 4.5: Traits & Genes

Unit 4.6: Heredity

Unit 4.7: Genetics & Breeding

Unit 4.8: Darwin and Evolution

Activity 1: Comprehension Reading (Unit 4.9 Handout 1)

Time: 35 - 40 minutes

1) Hand out **Unit 4.9 Handout 1** to students.

2) Explain to students they will read about natural selection as it relates to evolution and life science. This information is important foundational knowledge for questions that may be on the 2014 GED Science module.

3) Discuss with students that when reading for comprehension, there are many strategies to use: read the title to predict what the reading is about; look at the words in bold and their definitions on the left side of page; if there are images, look at them to get a better understanding; while reading remember to ask “What is this all about?”

4) Have students read the passage and answer the questions independently.

5) Circulate class while they are reading to make sure they understand the information presented and see if there are any questions.

6) Review answers as a whole class – note: some answers may vary – ask students with different answers to discuss theirs with the class.

Break: 10 minutes

Activity 2: Mid-unit Review (Unit 4.9 Handout 2)

Time: 40 - 50 minutes

1) Hand out **Unit 4.9 Handout 2** to students.

2) Explain that over the past 8 weeks, they have studied various aspects of Life Science as it relates to parts of the 2014 GED Science module.

3) Discuss with students that although this is not a “timed” test as the GED test will be, it is important to review some test taking strategies. Explain to them they can use the same strategies for many different tests they may have to take, such as the TABE, GED, or Accuplacer (college entrance exam) tests. Strategies include:

Lesson 4.9: Life Science – Natural Selection & Mid-unit Review

- 1) Read instructions first
- 2) Read question and possible answers
- 3) Make sure you understand what the question is asking
- 4) Skim and scan for information
- 5) Mark an answer for every question
- 6) Keep an eye on the clock (for a timed test)
- 7) If time permits, review answers

4) Have students begin the review. Circulate as needed to help struggling or newer students with the material. (Note: Newer students can take this opportunity to practice test taking skills and see how much science they know.) Remind students the questions may be worded differently from the study materials, similar to what they can expect on a test.

5) Review answers as a whole class.

6) Ask for students to share their answers and what evidence or information helped them find the answer. Remind students that there can be different possible answers for some questions. There will also be a written response on the 2014 GED Science module as there is with this review.

7) Have students circle the questions they didn't have correct. They should note this is an area they may need to study further. They should refer back to their handouts for the units that covered that content area.

Extra Work/Homework: Unit 4.9 handout 3

Time: 30 minutes outside of class

Students can continue work in the area of evolution with another reading. It is a good opportunity for students to check their comprehension skills.

Differentiated Instruction/ELL Accommodation Suggestions	Activity
If some students finish early, they can turn their paper over and summarize the reading passage.	Activity 1
Teachers should be aware that ELLs could have some difficult time with some of the vocabulary encountered in the handouts for Activity 1 & 2. Encourage them to look for context clues in the reading that will help them with interpreting new vocabulary.	Activity 1 & 2

Online Resources:

If students have Internet connection, they can practice various online quizzes in the areas of science.

http://glencoe.mcgraw-hill.com/sites/0078617022/student_view0/standardized_test_practice.html

This site is for “free GED practice test”, students can check box for the test they would like to try. It may be helpful to try only the science test with the whole class to gauge what could be on the test. (Note: this is not the official 2014 GED practice test and is a “for profit” website, so the test questions could vary greatly.)

<http://www.4tests.com/exams/examdetail.asp?eid=38>

Suggested Teacher Readings:

- GED Testing Service – GED Science Item Sample (to get an idea of what the test *may* be like)

<http://www.gedtestingservice.com/itemsamplerscience/>

- Assessment Guide for Educators: A guide to the 2014 assessment content from GED Testing Service:

<http://www.riaepdc.org/Documents/ALALBAASSESSMENT%20GUIDE%20CHAPTER%203.pdf>

- Minnesota is getting ready for the 2014 GED test! – website with updated information on the professional development in Minnesota regarding the 2014 GED.

http://abe.mpls.k12.mn.us/ged_2014_2

- Essential Education's 2014 GED Test Curriculum Blueprint (PDF)

<http://www.passged.com/media/pdf/educators/curriculum-blueprint.pdf>

Lesson 4.9: Life Science – Natural Selection & Mid-unit Review

Unit 4.9 Handout 2 (2 pages total)

Name: _____

Mid-Unit Review

- One-celled organisms may live in _____.
A. classes B. schools C. families D. colonies
- Which of the following is found in the cells of both unicellular and multicellular organisms?
A. cytoplasm B. a nucleus C. Golgi bodies D. a cell wall
- Cell division that produces new cells is called _____.
A. mitosis B. osmosis C. genetics D. duplication
- A new cell forms by mitosis from a cell that had ten chromosomes. How many chromosomes will the new cell have?
A. 5 B. 10 C. 15 D. 20
- How many of its genes does each offspring receive from its father?
A. all B. half C. one quarter D. three quarters
- Genes contain _____.
A. DNA B. ribosomes C. chromosomes D. mitochondrion
- A gene that determines the trait that is shown in an offspring is called _____.
A. dominant B. assertive C. recessive D. reproductive
- Before mitosis occurs, the chromosomes _____ so that each new cell receives one copy of the chromosome.
A. translate B. intercolate C. migrate D. replicate
- Most cells in our body divide by mitosis, although the _____ cells use a process called meiosis.
A. brain B. heart C. liver D. sex

Lesson 4.9: Life Science – Natural Selection & Mid-unit Review

10. A right-handed woman and a right-handed man have a baby. Could the baby be left-handed? Explain your reasoning.

11. What kind of trait is left-handedness?
- A. selective B. recessive C. dominant D. isolated
12. Humans play a role in all of the following methods of changing an organism's traits except _____.
- A. genetic modification B. selective breeding
- C. random mutation D. creating hybrids

Study the diagram below. Use information from the diagram to help you answer questions 13 - 15.

P	Pp	Pp
P	Pp	Pp

P = purple-flower allele p = white-flower allele

13. How many of the four pea plants have purple flowers? _____
14. Which plants in the Punnett square are homozygous for flower color?
-
15. One of the offspring of this generation (genotype Pp) transferred its pollen to another flower of the same generation (also of the genotype Pp). Fill in the Punnett square below to describe this cross.

—	—	—
—	—	—
—	—	—

Unit 4.9 handout 2

TEACHER ANSWER KEY

1. D
2. A
3. A
4. B
5. B
6. A
7. A
8. D
9. D
10. **Yes the baby could be left-handed if both the mom and dad pass down a recessive gene.**
11. B
12. C

	p	p
P	Pp	Pp
P	Pp	Pp

P = purple-flower allele p = white-flower allele

13. **4 – all of them**
14. **The parent flowers are both homozygous (PP & pp). The offspring are all heterozygous (Pp).**
- 15.

	P	p
P	PP	Pp
p	Pp	pp

Unit 4.9 Handout 3 (3 pages total)

ReadWorks

Non-fiction: A Distant Relative?

A Distant Relative?

How far back does your family tree go? A hundred years? A thousand years? What about 6 to 7 million years? An ancient skull found in Africa suggests that the human family might be that old.

Discovered in 2001 in the desert of Chad, the skull was nicknamed Toumai by scientists. Toumai is a rare find. The skull is nearly complete; it even includes a few teeth.

The finding is not without controversy. Some scientists think that Toumai is the oldest known hominid, or primitive human ancestor, ever found. Others say Toumai is an ape.

Most hominids that scientists are aware of lived millions of years after Toumai. The most famous one is called Lucy. She lived in Ethiopia about 3.5 million years ago. While Lucy's face looked like the face of a chimpanzee, Toumai's skull has both human and apelike features.

Because Toumai's skull looks different from other hominid skulls, some scientists think Toumai represents a whole new species. Toumai's official name is *Sahelanthropus tchadensis*.

Scientists were surprised to find a humanlike face on a skull as old as Toumai's. They thought hominids turned into humans step by step over time. Scientists plot those changes on a timeline, starting with a chimpanzee-like ancestor and ending with modern humans. Toumai's humanlike face and chimp-sized brain suggest that the development of hominids was not so simple.

There may not be a direct line leading from Toumai to Lucy to us. Instead, the timeline might resemble a tree with lots of branches. Different species in different places could have evolved humanlike features at different times.

Scientists aren't sure where exactly Toumai belongs on our family tree. Toumai could be like a great-great-grandfather—or just a distant cousin. Toumai could also be one of many types of hominids who roamed Earth millions of years ago.

Lesson 4.9: Life Science – Natural Selection & Mid-unit Review

Name: _____

1. Why do some scientists think that Toumai represents a new species?
 - A. Toumai's skull was found in a different continent than other hominid skulls.
 - B. Toumai's brain was bigger than brains of other hominids.
 - C. Toumai's skull looks different from other hominid skulls.
 - D. Toumai's teeth were smaller than teeth in other hominid skulls.
2. Based on the passage, one could argue that Toumai best fits in which position on the human family tree?
 - A. twin brother
 - B. grandfather
 - C. great uncle
 - D. distant cousin
3. Which of the following statements is supported by the passage?
 - A. New discoveries can change how scientists understand humans.
 - B. New discoveries confirm what scientists already know about humans.
 - C. New discoveries prove that scientists are wrong about humans.
 - D. New discoveries help scientists make new medicines for humans.
4. Read the following sentence and answer the question: "Some scientists think that Toumai is the oldest known hominid, or primitive human ancestor, ever found." In this sentence, the word **primitive** means
 - A. wise
 - B. early
 - C. complex
 - D. late
5. The main idea of this passage is that
 - A. all scientists agree that Toumai is our great-grandfather
 - B. scientists disagree about how Toumai fits into the human family tree
 - C. some scientists think that Toumai is an ape
 - D. scientists disagree about the location in which Toumai was found
6. What is the Toumai skull?

Lesson 4.9: Life Science – Natural Selection & Mid-unit Review

7. How does the discovery of Toumai challenge what scientists know about humans and human development?

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

Toumai could be the oldest hominid, _____ some scientists think that he was an ape.

A. so

B. but

C. if

D. because

Unit 4.9 Handout 3 (3 pages total) **TEACHER ANSWER KEY**

1. C
2. D
3. A
4. B
5. B

6. Answers may vary, suggested answer: The Toumai skull is an ancient skull found in Chad that is between 6 and 7 million years old.

7. Answer may vary, suggested answer: Scientists thought that hominids turned into humans step by step over time, but Toumai does not fit on their timeline because he is older than other hominids yet still has a humanlike face. This may mean that humans developed differently in different places and times.

8. B